CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CEMENT/2015-16 Date: 07.02.2016

TEST REPORT ON CEMENT

*** CUSTOMER**	:	**Asst. Executive Engineer**, Byatarayanapura Sub Division, BBMP, Bangalore.
***AGENCY**	:	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***NAME OF THE WORK**	:	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***REFERENCE**	:	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
SAMPLE ID	:	Cement – Sample 2
SAMPLE RECEIVED ON	:	05.02.2016
PERIOD OF TESTING	:	05.02.2016 to 07.02.2016

The results of the tests conducted on the cement sample are as follows:

Sl. No	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 8112-2013
1	Standard Consistency	IS-4031 (Part -4) 1988(RA-2009)	29.00 %	-
2	a) Initial Setting Time	IS-4031 (Part -5) 1988(RA-2009)	160 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part -5) 1988(RA-2009)	480 Minutes	Not More than 600 Minutes
3	Soundness by Le Chartlier Method	IS-4031 (Part-3) 1988(RA-2009)	1 mm	Not more than 10mm

*Information is furnished by the Customer/Representative.

Note:

⇒ The report shall not be reproduced, except in full, without the written approval of the laboratory.

⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.

⇒ Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

AE-05

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/SAND-Gradation/2015-16 : 07.02.2016

TEST REPORT ON DETERMINATION GRADATION OF FINE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. Gopi Reddy,**
No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.

*** Name of Work** : Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016

Technical Reference : IS : 2386 Part 1 - 1963 RA-2007

Sample ID : Fine Aggregates – Sample 2

Sample Received on : 05.02.2016

Date of Testing : 07.02.2016

Total Wt. of Aggregates in gms **1000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)			
		Zone-I	Zone-II	Zone-III	Zone-IV
10	100	100	100	100	100
4.75	94.00	90-100	90-100	90-100	95-100
2.36	77.50	60-95	75-100	85-100	95-100
1.18	59.30	30-70	55-90	75-100	90-100
600 Micron	32.30	15-34	35-59	60-79	80-100
300 Micron	14.80	5-20	8-30	12-40	15-50
150 Micron	4.30	0-10	0-10	0-10	0-15

* Information is furnished by the Customer/Representative

Remarks : This sample is under Zone-I specific limits.

Civil-Tech Consultants & Engineers Bangalore

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/AGG/GR/2015-16 : 07.02.2016

TEST REPORT ON DETERMINATION GRADATION OF COARSE AGGREGATES

*** Customer** : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

*** Agency** : **Mr. Gopi Reddy,**
No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.

*** Name of Work** : Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016

Technical Reference : IS : 2386 Part 1 -1963 RA-2007

Sample ID : Coarse Aggregates (40mm) – Sample 2

Sample Received on : 05.02.2016

Date of Testing : 07.02.2016

Total Wt. of Aggregates in gms= **10000**

Is Sieve Size in mm	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA- 2007)	
		Graded	Single Sized
80	100	100	-
63	100	-	100
40	96.75	95-100	85-100
20	35.50	30-70	0-20
10	12.40	10-35	0-5
4.75	2.90	0-5	-

* Information is furnished by the Customer/Representative

Remarks : This sample is under Graded specific limits.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಆಯುಕ್ತರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/WMM/Gradation/2015-16

18.02.2016

GRADATION FOR WMM
MORTH TABLE-400-11

Client : **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.

Agency : **Mr. Gopi Reddy,**
No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.

Name of Work : Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016

Date of Testing : 18.02.2016

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **7895**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	215	215	2.7	97.3	95-100
22.4	2650	2865	36.3	63.7	60-80
11.2	1310	4175	52.9	47.1	40-60
4.75	1050	5225	66.2	33.8	25-40
2.36	985	6210	78.7	21.3	15-30
0.600	710	6920	87.7	12.3	8-22
0.075	550	7470	94.6	5.4	0-8

Civil-Tech Consultants & Engineers Bangalore

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/WMM/AIV/2015-16

18.02.2016

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
Name of the Work	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	18.02.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	389	390	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	86	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	303	303	
4	Aggregate Impact value = percent fines	22.11	22.31	
	100* (W_2/W_1)%			**22.21**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/WMM/S-T/2015-16 18.02.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
Name of Work	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	18.02.2016

Result : Flakiness Index = **12.35%**

Elongation Index = **13.90%**

Result : Combined Flakiness & Elongation index 26.25%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory

→ The results indicated above are based on the tests carried out on the samples received in the laboratory

→ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಅಧಿಕ್ಷಕ AE-01
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/SDBC/AIV/2015-16 14.03.2016

Aggregate Impact Value

IS: 2386 Part IV

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
Name of the Work	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.03.2016

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	390	391	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	84	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	306	305	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.54	21.99	**21.77**

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

Note:

Þ This test report should not be reproduced except in full, without written approval of the laborat

Þ The results indicated above are based on the tests carried out on the samples received in the lab

Þ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-೭೯

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/SDBC/Shape_T/2015-16 : 14.03.2016

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
Name of Work	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 14.03.2016

Result : Flakiness Index = **12.35%**

Elongation Index = **13.10%**

Result : Combined Flakiness & Elongation index **25.45%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

- This test report should not be reproduced except in full, without written approval of the laboratory
- The results indicated above are based on the tests carried out on the samples collected by the laboratory
- Any Query regarding the report must be reported within 30 daysfrom the date of testing

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬಿಬಿಎಂಪಿ, ಬೆಂಗಳೂರು-24

ಸಹಾಯಂ AE-05
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

M/s. Civil-Tech Consultants & Engineers
 # 23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

Job No.: CTCE/BBMP/W.No.05/GR/SDBC/Stripping/2015-16 14.03.2016

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
Name of the work	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	14.03.2016

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory

Þ The results indicated above are based on the tests carried out on the samples received in the laboratory

Þ Any Query regarding the report must be reported within 30 days from the date of testing.

ಸಹಾಯಕ ಕಾರ್ಯನಿರ್ವಾಹಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ
ಬೆಂಗಳೂರು-26

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

M/s. Civil-Tech Consultants & Engineers
23/14, 7th Cross, 3rd Stage,
4th Block, Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/SDBC/Sp_Wa/2015-16 14.03.2016

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
Agency	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
Name of the Work	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	14.03.2016

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2025	2018	
2	Weight of basket suspended in water	W_2 g	755	2020	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1265	1270	1263	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2016	2018	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	750	746	755	
6	Weight of oven dried aggregate	W_4 g	2000	1999	2005	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.667	2.680	2.656	2.667
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.721	2.742	2.702	2.722
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.75%	0.85%	0.65%	0.75%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

Note:

Þ This test report should not be reproduced except in full, without written approval of the laboratory

Þ The results indicated above are based on the tests carried out on the samples received in the laboratory

Þ Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

An ISO 9001:2008 Certified Company

NABL - Accredited Laboratory as per ISO / IEC-17025 : 2005

JAS-ANZ BSCIC ISO 9001 REGISTERED

Job No.: CTCE/BBMP/W.No.05/GR/SDBC/Bitumen/2015-16 14.03.2016

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

Client	**Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
NAME OF THE WORK	Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
SAMPLE I/D	Roads in Jakkur village in Ward No.05, BBMP, Bangalore.
DATE OF TESTING	14.03.2016

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	473.5	475.7
3. Weight of Asphalt and Mineral matter Extracted,	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	26.5	24.30
7. Bitumen content in %	5.30	4.86
8. Average	**5.08**	

GRADATION AFTER EXTRACTION

SIEVE SIZE	Trail 1				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	33.15	7.00	7.00	93.00	90-100
4.75	250.2	52.84	59.84	40.16	35-51
2.36	39.68	8.38	68.22	31.78	24-39
1.18	45.32	9.57	77.79	22.21	15-30
0.3	46.35	9.79	87.58	12.42	9-19
0.075	35.26	7.45	95.03	4.97	3-8

SIEVE SIZE	Trail 2				JOBMIX
mm	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	Gradation
13.2	0	0	0	100	100
9.5	34.25	6.85	6.85	93.15	90-100
4.75	255.6	51.12	57.97	42.03	35-51
2.36	56.36	11.27	69.24	30.76	24-39
1.18	45.65	9.13	78.37	21.63	15-30
0.3	39.65	7.93	86.30	13.70	9-19
0.075	39.65	7.93	94.23	5.77	3-8

Note:

- This test report should not be reproduced except in full, without written approval from the laboratory
- The results indicated above are based on the tests carried out on the samples received in the laboratory
- Any Query regarding the report must be reported within 30 days from the date of testing.

M/s. Civil-Tech Consultants & Engineers
#23/14, 7th Cross, 3rd Stage
Shakthiganapathinagara,
Basaveshwaranagar,
Bangalore-560079.

Civil-Tech Consultants & Engineers Bangalore

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.

Tele Fax : 23223227, Website : www.civiltechconsultants.com

E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರ ಕಛೇರಿ
ಬಾಣಸವಾಡಿ ಉಪ ವಿಭಾಗ

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 14.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***Name of the work**	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
***Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 14.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2016	14.03.2016	8.135	476.5	21.18
2	15.02.2016	14.03.2016	8.237	490.3	21.79
3	15.02.2016	14.03.2016	8.330	515.2	22.90

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 14.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***Name of the work**	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
***Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 14.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2016	14.03.2016	8.128	479.3	21.30
2	15.02.2016	14.03.2016	8.298	510.2	22.68
3	15.02.2016	14.03.2016	8.450	526.3	23.39

*Information is furnished by the Customer/Representative.

AE-05

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪವಿಭಾಗ

VISHWANATH .C
Quality Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 14.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*Customer	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
*Agency	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
*Name of the work	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
*Reference	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 14.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2016	14.03.2016	8.248	479.6	21.32
2	15.02.2016	14.03.2016	8.332	492.3	21.88
3	15.02.2016	14.03.2016	8.475	512.6	22.78

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಅಧಿಕ್ಷಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 14.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***Name of the work**	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
***Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 14.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	15.02.2016	14.03.2016	8.187	480.2	21.34
2	15.02.2016	14.03.2016	8.280	490.5	21.80
3	15.02.2016	14.03.2016	8.324	505.5	22.47

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 15.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***Name of the work**	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
***Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 15.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.02.2016	15.03.2016	8.117	478.6	21.27
2	16.02.2016	15.03.2016	8.225	489.3	21.75
3	16.02.2016	15.03.2016	8.312	515.4	22.91

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

AE-05

AE-05
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 15.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

*Customer	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
*Agency	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
*Name of the work	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
*Reference	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
* Grade of Concrete	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 15.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.02.2016	15.03.2016	8.165	483.5	21.49
2	16.02.2016	15.03.2016	8.230	510.4	22.68
3	16.02.2016	15.03.2016	8.390	523.4	23.26

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 15.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***Name of the work**	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Pavement Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
***Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 15.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	16.02.2016	15.03.2016	8.097	485.5	21.58
2	16.02.2016	15.03.2016	8.128	505.6	22.47
3	16.02.2016	15.03.2016	8.293	525.4	23.35

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

CIVIL-TECH CONSULTANTS AND ENGINEERS

Building & Highway Material Testing Laboratory

NABL - Accredited Laboratory as per ISO / IEC-17025 :2005

T-2377

Job No.: CTCE/BBMP/W.No.05/GR/CSR-02/1064/CUBE/2015-16 21.03.2016

TEST REPORT ON COMPRESSIVE STRENGTH OF CONCRETE CUBES

***Customer**	: **Asst. Executive Engineer,** Byatarayanapura Sub Division, BBMP, Bangalore.
***Agency**	: **Mr. Gopi Reddy,** No.03, 1st Cross, 1st Main, Ramachandrappa Layout, Arebic College Post, Erannapalya, Bangalore – 560045.
***Name of the work**	: Improvements to Roads and Drains at Jakkur Village Right Side in Ward No.05, Byatarayanapura Sub Division, BBMP, Bangalore.
***Reference**	: EE/BTP/BBMP/E-PMT/204/2015-16 Dated: 05.02.2016
Sample ID	: Coverng Slab Concrete
Size of cubes	: 150mmx150mmx150mm
Cross Sectional Area	: 22500 mm^2
Technical Reference	: IS: 516-1959 (Reaffirmed 2008)
***Grade of Concrete**	: M_{20}
Compressive Strength as on	: 28th day
Sample Received on	: 21.03.2016

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)
1	22.02.2016	21.03.2016	8.187	476.6	21.18
2	22.02.2016	21.03.2016	8.295	510.5	22.69
3	22.02.2016	21.03.2016	8.385	532.5	23.67

*Information is furnished by the Customer/Representative.

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 30 days from the date of testing.

****

VISHWANATH .C
Quality Manager

ಸಹಾಯಕ ಅಭಿಯಂತರರು
ಬ್ಯಾಟರಾಯನಪುರ ಉಪ ವಿಭಾಗ

#23/14, 7th Cross, 3rd Stage, 4th Block, Shakthi Ganapathi Nagara, Basaveshwaranagar, Bangalore-79.
Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com